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Sustainability and the Failure of Ambition in European Pesticides Regulation

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ABSTRACT

Sustainability, as a concept, is recognised as consisting of various complex but familiar elements. One would expect to find such elements in legislation purporting to adopt sustainability as its orientating goal. This is arguably so with the EU's 2009 Directive that aims to achieve the sustainable use of pesticides (the Sustainable Use Directive). Legislation governing pesticide use built on the principles of sustainability could provide a powerful and sophisticated framework through which to consider, and respond to, the multiplicity of concerns pesticide use raises. This article examines sustainability in terms of its potential to regulate pesticide use. It articulates various elements of sustainability that one might expect to find in legislation designed to achieve sustainable pesticide use. It assesses the Sustainable Use Directive against the elements identified and argues that the Directive implements a narrow agenda of risk management rather than genuinely and ambitiously adopting the true principles of sustainability.

KEYWORDS: sustainability, sustainable development, pesticides, European Union, risk regulation

1. INTRODUCTION

Several decades of scholarship and policy have populated the concept of sustainability with various, now familiar, elements. Even while significant details remain subject to debate, one may see, at minimum, a loose consensus on their relevance to sustainability. Where used therefore, for example in legislation or policy, sustainability should raise expectations that these elements will exist.

In 2009, the EU introduced a new Directive designed to achieve the sustainable use of pesticides (the Sustainable Use Directive, or SUD).[1] Pesticide use is complex, encompassing a diverse range of social, ethical, economic, environmental, health-related and scientific questions and impacts. Sustainability is equally complex, demanding the consideration of, amongst other things, the social, economic and environmental. As such, legislation built on the principles of sustainability could provide a powerful and sophisticated framework through which to consider, and

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1 European Parliament and Council Directive 2009/128/EC establishing a framework for Community action to achieve the sustainable use of pesticides [2009] OJ L309/71.

respond to, the multiple concerns pesticide use raises. This article considers how successfully the SUD incorporates elements of sustainability and uses them to address the complexities of pesticide use, and thus, how successfully it meets expectations associated with sustainability.

More generally, this discussion aims to contribute to the larger discourse around risk assessment, the environment and decision-making in the regulation of risky technologies.[2] In this context, a wholesale adoption of 'sustainability' as a framework on which to hang European regulation of pesticides could provide a real spur for ambitiously opening up decision-making to a broad range of issues and contributions from a variety of sources. It thereby presents an opportunity to depart from the narrow, predominantly risk-based approach commonly applied to the regulation of risky technologies in the EU.[3]

Pesticides display a constellation of considerations, many, if not all, of which should be visible through the regulator's telescope. I discuss these in Section 2.

In Section 3, I discuss the specific potential of sustainability for regulating pesticide use by identifying and considering three key elements associated with sustainability and relating them directly to pesticide use.

The SUD is a framework directive, acknowledging the vast diversity of national conditions in the EU with respect to the structure of the agricultural sector, climate, geography and existing national legislation.[4] It is the culmination of a long period of development and consultation set in motion in 2002 by the Sixth Environmental Action Programme (6EAP)[5] and operates alongside the 2009 Plant Protection Product Regulation.[6] In Section 4, I evaluate the SUD in light of the key elements discussed in Section 3. I argue that the label 'sustainable' conceals an approach that falls far short of adopting such elements and consequently realising the potential of sustainability.

In Section 5, I offer some explanations for the EU's lack of ambition in this area. The SUD, I argue, contains a reductive and unimaginative approach to the implementation of sustainable use, which ignores the richness and ambition of the discourse on sustainability and its well-established elements. This potential, I argue further, is overlooked in favour of an approach primarily aimed at managing risk to ensure safety and environmental protection. This is a familiar approach in European

2 Space prevents consideration of this complex debate. However, the following are good places to start: Maria Lee, 'Beyond Safety? The Broadening Scope of Risk Regulation' (2009) 62 CLP 242; Elizabeth Fisher, 'Risk and Environmental Law: A Beginner's Guide' in Benjamin Richardson and Stepan Wood (eds), *Environmental Law for Sustainability: A Reader* (Hart Publishing 2006).

3 Lee (n 2) 267, 285; Naomi Salmon, 'What's Cooking? From GM Food to Nanofood: Regulating Risk and Trade in Europe' (2009) 11 Env LR 97.

4 Commission, 'Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Community Action to Achieve a Sustainable Use of Pesticides' COM (2006) 373 final 9.

5 European Parliament and Council Decision No 1600/2002/EC laying down the Sixth Community Environmental Action Programme [2002] OJ L242/1. Prior to this launch, the Commission had been collaborating on a project to develop a 'Framework for the Sustainable Use of Plant Protection Products' since 1992 <http://ec.europa.eu/environment/archives/ppps/history.htm> accessed 4 April 2015.

6 European Parliament and Council Regulation 1107/2009/EC concerning the placing of plant protection products on the market [2009] OJ L309/1.

regulation of environmentally risky technologies and leaves little space for other matters associated with pesticide use to exert influence.

2. THE PESTICIDE QUESTION

Pesticides occupy a unique place in modern society. They are substances,[7] acknowledged to be inherently toxic, that are deliberately released into the environment[8] both in spite of and because of their toxic properties, in pursuit of socio-economic benefits such as crop protection. These benefits also include the production of high-quality, affordable fruits and vegetables,[9] the reduction of labour (and labour costs) and freedom from dependence on crop rotation.[10] Overall, pesticides 'make a significant contribution to maintaining world food production'.[11]

Regarding the risks and costs of pesticides, those to the environment and public health are the most immediately obvious. Intensive agriculture, including pesticide use, has led to serious environmental degradation.[12] The potential impacts on human health are well-documented[13] and include risks of direct exposure of workers, indirect exposure of consumers and bystanders and possible bioaccumulation and persistence, carcinogenicity, mutagenicity and endocrine disruption.[14]

Regulation, for example the landmark[15] adoption of the Plant Protection Product Directive,[16] and improvements in the pesticide products themselves[17] have improved safety.[18] However, one need only look at events within the last few years in relation

7 Pesticides are predominantly chemicals. For discussion of chemicals regulation in general, see Commission, 'Strategy for a Future Chemicals Policy' COM (2001) 88 final.

8 Commission, 'Towards a Thematic Strategy on the Sustainable Use of Pesticides' COM (2002) 349 final 9, 12; Geert de Snoo, 'Variations in Agricultural Practice and Environmental Care' in Frank den Hond, Peter Groenewegen and Nico van Straalen (eds), *Pesticides: Problems, Improvements, Alternatives* (Blackwell Publishing 2003) 105.

9 Commission (n 8) 11.

10 Frank den Hond, Peter Groenewegen and Nico van Straalen, 'Questions Around the Persistence of the Pesticide Problem' in Frank den Hond, Peter Groenewegen and Nico van Straalen (eds), *Pesticides: Problems, Improvements, Alternatives* (Blackwell Publishing 2003) 7.

11 David Pimentel and others, 'Assessment of Environmental and Economic Impacts of Pesticide Use' in David Pimentel and Hugh Lehman (eds), *The Pesticide Question: Environmental, Economics and Ethics* (Routledge, Chapman & Hall Inc 1993) 47.

12 den Hond, Groenewegen and van Straalen (n 10) 7.

13 See, eg, British Medical Association, *The BMA Guide to Pesticides, Chemicals, and Health* (Edward Arnold 1992); Stanley Schuman, 'Risks of Pesticide-Related Health Effects: An Epidemiologic Approach' in David Pimentel and Hugh Lehman (eds), *The Pesticide Question: Environmental, Economics and Ethics* (Routledge, Chapman & Hall Inc 1993).

14 Commission (n 8) 12–13.

15 den Hond, Groenewegen and van Straalen (n 10) 2.

16 Council Directive 91/414/EEC concerning the placing of plant protection products on the market [1991] OJ L230/1.

17 den Hond, Groenewegen and van Straalen (n 10) 3.

18 There are still accounts of adverse effects, Georgina Downs, 'Pesticides - the Government Must Protect Us!' *The Ecologist* [2013] <www.theecologist.org/blogs_and_comments/commentators/2200835/pesticides_the_government_must_protect_us.html> accessed 15 June 2014.

to neonicotinoids,[19] residents' and bystander exposure[20] and developments in EU policy relating to endocrine disrupting chemicals[21] to see that the impacts of pesticides are still sources of serious concern. More generally, other problems persist. For example, pesticides and their metabolites are ubiquitous; persistent organochlorines have been found in ecosystems distant from any industrial or agricultural source, raising concerns about their potential ecological effects on pristine ecosystems, and increasing numbers of species are developing resistance.[22] In addition, agricultural products still contain residues that exceed limit values[23] and pesticide residues in water are a concern.[24]

The largest battleground regarding the pesticide question is the impact on health and the environment. However, these impacts have repercussions beyond purely physical damage. One is the socio-economic costs of the intensive cultivation of a small variety of crops in large monocultures partially facilitated by low-cost pesticides; for example, the growing operating costs for farmers attempting to increase production.[25] At the same time, distribution of the overall costs of pesticide use raises questions of equity.[26] Farmers incur a capital outlay on pesticides, but the environmental and health impacts of use are borne off-site. For example, consumers pay costs incurred by water companies to clean water.[27] Workers, bystanders and local residents may also sustain uncompensated damage. This is not just a question of intra-generational equity but also inter-generational equity since pesticides persist long after the associated benefits have been consumed.[28] These distributive

19 Commission Implementing Regulation 485/2013/EU amending Implementing Regulation (EU) No 540/2011, as regards the conditions of approval of the active substances clothianidin, thiamethoxam and imidacloprid [2013] OJ L139/12. For background to the concerns related to the effects of neonicotinoids on bees, see European Environment Agency, *Late Lessons from Early Warnings: Science, Precaution, Innovation* (Publications Office 2013) ch 16.

20 For more information on exposure, see 'Bystander Risk Assessment Working Group Report (Risk Assessment to Pesticide Exposure) - Government Response' (2013) <www.gov.uk/government/publications/brawg-report-risk-assessment-to-pesticide-exposure-government-response> accessed 19 February 2015.

21 PAN-Europe, 'Endocrine Disruption Criteria Update: A Roadmap to Nowhere' (2014) <www.pan-europe.info/News/PR/140618.html> accessed 1 April 2015; PAN-Europe, 'New Attack on EU Policy Regarding Endocrine Disruption: Health DG SANCO Prepares an Escape Route for Pesticides' (2014) <www.pan-europe.info/News/PR/140520.html> accessed 1 April 2015. For further information on endocrine disruption, see the European Food Safety Authority <www.efsa.europa.eu/en/topics/topic/eas.htm> accessed 1 April 2015.

22 den Hond, Groenewegen and van Straalen (n 10) 4–5.

23 Manuela Olga Pogăcean and Maria Gavrilescu, 'Plant Protection Products and Their Sustainable and Environmentally Friendly Use' (2009) 8 Env Eng Mangmt J 607, 624.

24 Jules Pretty and Hermann Waibel, 'Paying the Price: The Full Cost of Pesticides' in Jules Pretty (ed), *The Pesticide Detox: Towards a More Sustainable Agriculture* (Earthscan 2005) 13.

25 This trend has been observed across the world, Jules Pretty, William Vorley and Dennis Keeney, 'Pesticides in World Agriculture: Causes, Consequences and Alternative Courses' in William Vorley and Dennis Keeney (eds), *Bugs in the System: Redesigning the Pesticide Industry for Sustainable Agriculture* (Routledge 1998) 20; den Hond, Groenewegen and van Straalen (n 10) 1.

26 Pimentel and others (n 11) 71; Jules Pretty, 'Reality Cheques' in Jules Pretty (ed), *The Earthscan Reader in Sustainable Agriculture* (Earthscan 2005) 51; The Commission recognises this, Commission (n 8) 14.

27 Pretty (n 26) 55.

28 Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (United Nations University 1989) 5.

questions have an ethical dimension.[29] To take an extreme example, the weight attributed to the various benefits of pesticide use, for example cosmetic appearance, and the various risks, for example loss of human life, requires ethical scrutiny.[30]

In addition, pesticides can be ineffective. For example, modern insecticides must be sprayed repeatedly to maintain control, sometimes leading to resistance and exacerbating a pest problem by killing natural enemies.[31] This leads to inefficiency, reducing the economic return on investment in the pesticide.[32]

A related concern is the level of knowledge and visibility of the costs and benefits of maintaining or reducing pesticide use.[33] There is little data on the health and environmental costs of use on other sectors and interests, although the Commission has conducted an Impact Assessment of the Thematic Strategy on the Sustainable Use of Pesticides.[34] There may be economic benefits to reducing pesticide use, for example, reduced input costs.[35] However, there may also be disadvantages; if food prices increase, the poor will be hit worst[36] and more extensive agriculture may be required,[37] potentially absorbing land previously used for other purposes, such as recreation. Visibility of such costs and benefits is clearly an important concern, not just in terms of economic efficiency, but also in terms of building a clear picture of the economic distributional landscape on which to found a fair regulatory regime. The economic context for these trade-offs is the size and importance of the plant protection industry to Europe and the benefits that bring in terms of, for example, employment.[38]

Uncertainty and indeterminacy (to use Brian Wynne's taxonomy[39]) characterise the environmental and health impacts (as well as costs) of pesticides. We still have limited knowledge about causal relationships between harmful products and damage to health and the environment,[40] or indirect or cumulative effects on ecosystems; knowledge of these effects accrues slowly and can still surprise us.[41] Our ignorance extends further, to the 'underlying interdependencies, structures and

29 Pimentel and others (n 11) 71.

30 ibid 71–72.

31 Gordon Conway, 'The Doubly Green Revolution' in Jules Pretty (ed), *The Earthscan Reader in Sustainable Agriculture* (Earthscan 2005) 115.

32 Pimentel and others (n 11) 57.

33 Pretty and Waibel (n 24) 39–42.

34 Commission, 'The Impact Assessment of the Thematic Strategy on the Sustainable Use of Pesticides' SEC/2006/0894.

35 Pretty and Waibel (n 24) 52.

36 Frederick Buttel, 'Socioeconomic Impacts and Social Implications of Reducing Pesticide and Agricultural Chemical Use in the United States' in David Pimentel and Hugh Lehman (eds), *The Pesticide Question: Environmental, Economics and Ethics* (Routledge, Chapman & Hall Inc 1993) 170. The discussion here is centred around Europe, but the EU is sensitive towards the implications of its regulation of, for example, residue levels, for international trade in commodities grown using pesticides, Commission (n 8) 17.

37 Buttel (n 36) 175.

38 Pogăcean and Gavrilescu (n 23) 622; Commission (n 8) 11.

39 Brian Wynne, 'Uncertainty and Environmental Learning: Reconceiving Science and Policy in the Preventive Paradigm' (1992) 2 Global Env Change 111.

40 Jules Pretty, 'Preface' in Jules Pretty (ed), *The Pesticide Detox: Towards a More Sustainable Agriculture* (Earthscan 2005).

41 Catrin Meir and Stephanie Williamson, 'Farmer Decision-Making for Ecological Pest Management' in Jules Pretty (ed), *The Pesticide Detox: Towards a More Sustainable Agriculture* (Earthscan 2005) 15–17.

driving forces'[42] that influence pesticide use. Indeterminacy also extends to the social sphere. Decisions regarding pesticide application made by individual farmers and their actual use are absent from *ex ante* evaluation of chemicals at authorisation.[43] As such, there have been calls for better understanding of farmer decision-making and the wide variety of factors that influence it, for the benefit of policy-making and regulation.[44]

The relative age of pesticide technology is, in some ways, still important. We are not teetering on the edge of a technological precipice as we are with, for example, synthetic biology or quantum computing. Sheila Jasanoff perhaps encapsulates the state of play with respect to pesticides and their entrenchment in modern societies:

> The argument from political economy suggests how technologies can be made to seem apolitical. Artifacts – social no less than material ones – can become so hardened through design and use that the ways in which they incorporate political choice or economic power cease to be visible . . . Once a technology has been blackboxed and put to use, it takes unusual convulsions to make the underlying social choices apparent again: like a . . . powerful lobby of organic food consumers that creates a market for things grown certifiably without the aid of agricultural biotechnology.[45]

Unlike emerging technologies, pesticides are not disruptive of our current mode of living, but rather constitutive of it, down to our preference for cosmetically perfect produce. Protection of human health and the environment is unquestionably important.[46] However, as the foregoing discussion illustrates, these concerns do not form the entire picture with respect to pesticides. According to Jasanoff, 'the element of choice so often becomes invisible once a technology assumes its working form'.[47] However, even with a well-established technology such as pesticides, we still have a choice.[48] The opportunity to revisit our choices here depends on the ambition with which sustainability is conceived and implemented.

3. THE POTENTIAL OF SUSTAINABILITY AND SUSTAINABLE USE IN PESTICIDES REGULATION

As outlined in Section 1, I will argue below that the SUD implements an unambitious interpretation of sustainability, devoid of many of the elements one might expect sustainability to import. In the present section, I demonstrate the potential of

42 Peter Groenewegen, Frank den Hond and Nico van Straalen, 'Integration: Learning to Solve the Pesticide Problem' in Frank den Hond, Peter Groenewegen and Nico van Straalen (eds), *Pesticides: Problems, Improvements, Alternatives* (Blackwell Publishing 2003) 250.

43 ibid 242–43; Brian Wynne, 'Risk and Social Learning: Reification to Engagement' in Sheldon Krimsky and Dominic Golding (eds), *Social Theories of Risk* (Praeger 1992) 284–286.

44 de Snoo (n 8) 100; Meir and Williamson (n 41) 83–84.

45 Sheila Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton UP 2007) 206–207.

46 PAN-Europe focusses on health and environmental protection. Also, Paul B Thompson, *The Spirit of the Soil: Agriculture and Environmental Ethics* (Routledge 1995) 32.

47 Jasanoff (n 45) 205.

48 European Environment Agency (n 19) 240; Pretty (n 26) 56.

sustainability by discussing three of these elements in detail. These are (i) sustainability as consisting of three dimensions: the social, economic and environmental; (ii) the importance of values in defining sustainability; and (c) inter- and intra-generational equity.[49] It is at least a commitment to these elements that legislation seeking sustainable use should exhibit and it is against these elements that I assess the SUD.

Much of the discourse relating to sustainability uses the terms 'sustainability' and 'sustainable development' interchangeably, or without delineating a boundary between the two.[50] I use the term 'sustainability', but have drawn on literature that employs both terms in analysing the EU's law and policy on 'sustainable use' of pesticides.

Before proceeding to discuss the elements of sustainability, the meaning of 'use' deserves attention. The Oxford Dictionary of English[51] defines 'use' as 'take, hold, or deploy (something) as a means of accomplishing or achieving something', with the additional meanings of 'employ', 'exploit' or 'consume'. Use is a fundamental human activity and humans achieve and maintain sustenance, shelter, health and well-being, work and enjoyment through using their surroundings. However, our methods of use are not preordained and unchangeable, but reflect the values of the individual users and their societies. For example, use could be exclusive or common, profligate or parsimonious. Ultimately, individuals and societies have a choice about their patterns and objects of use and those choices will have, amongst others, social, economic and environmental consequences.

Traditionally, 'sustainable development' as applied to agriculture has tended simply to mean 'optimising (or reducing) the use of synthetic pesticides and minimising environmental impact'.[52] However, given the relationship between pesticide use, the complexity of agriculture, the existence of multiple considerations beyond safety and the thorough embedding of pesticide use in modern society, it may be reasonable to ask: is this a fitting response to the intricacies of pesticide use? Construing the problems of pesticide use as narrow risk problems and considering them in isolation of contiguous policy spheres would surely eviscerate sustainability of much of its content.

My point is that pesticide use has consequences that policy and law, by adopting sustainability as guiding principle, seek to shape. These consequences extend beyond damage to health and the environment. Attaching a narrow (risk-based)

49 There is, of course, much more to sustainability and sustainable development beyond these elements. For further discussion, see John Dryzek, *The Politics of the Earth: Environmental Discourses* (3rd edn, Oxford University Press 2013) ch 7; Maria Lee, *EU Environmental Law, Governance and Decision-Making* (2nd edn, Hart Publishing 2014) ch 3; Andrea Ross, 'Modern Interpretations of Sustainable Development' (2009) 36 JLS 32.

50 For a discussion of the potential difference between the two terms, see Robert Paehlke, 'Sustainability, Sustainable Development, and Values' in John Martin Gillroy and Joe Bowersox (eds), *The Moral Austerity of Environmental Decision Making: Sustainability, Democracy, and Normative Argument in Policy and Law* (Duke University Press 2002).

51 Angus Stevenson (ed), *Oxford Dictionary of English* (3rd edn, Oxford University Press 2010).

52 Susan Carr, 'New Biotechnology, Crop Protection and Sustainable Development' in Frank den Hond, Peter Groenewegen and Nico van Straalen (eds), *Pesticides: Problems, Improvements, Alternatives* (Blackwell Publishing 2003) 170.

understanding of sustainability to pesticide use fails both to respond to these diverse consequences and reflect what sustainability is or could be.

3.1 The Three Dimensions

The overarching draw of sustainability, with respect to the regulation of pesticide use, is its acknowledgement of the relevance of social, economic and environmental dimensions. Sustainability arose in the 1980s to 'dissolve the conflicts between environmental and economic values'[53] and its popularity stems from its optimistic linking of the environment and development[54] by 'bundling together environmental, social and economic policy strands'.[55] Much debate over sustainable development has focussed on the three 'mutually reinforcing' pillars of social well-being, economic growth and environmental protection, whether they are equal or whether one, particularly the environment pillar, enjoys priority over the others.[56] Although there is no overall consensus as to the meaning of sustainable development[57] (or sustainability), the 'official' policy view, in the EU and internationally, appears to endorse equality between the pillars,[58] encouraging the balancing and prioritisation of aims, during decision-making, in response to given circumstances. The Court of Justice of the EU has, to a certain extent, demonstrated willingness to engage in balancing exercises where commercial economic interests are involved. For example, in *First Corporate Shipping*, AG Léger opined that sustainable development did not mean that the environment should always prevail over other interests but rather that interests should be balanced and reconciled.[59] However, consideration of such commercial economic issues does not guarantee that the court will take into account broader economic or distributive issues. Nor does it address the difficulty of calculating the costs of a particular activity. In light of the discussion of economic assessments of the impacts of pesticide use above, sustainability's economic dimension should encourage careful and open consideration of the range of costs of pesticide use, acknowledging the

53 Dryzek (n 49) 16.

54 Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate 2008) 26.

55 Mark Stallworthy, *Understanding Environmental Law* (Sweet & Maxwell 2008) 174.

56 Bosselmann (n 54); Ross (n 49).

57 Bosselmann (n 54) 23.

58 'The Future We Want', UN doc A/RES/66/288 paras 75, 87; Raymond Clémençon, 'Welcome to the Anthropocene: Rio+20 and the Meaning of Sustainable Development' (2012) 21 J Env Dev 311, 312; Dryzek (n 49) 147–48; Marc Pallemaerts, 'Developing More Sustainably?' in Andrew Jordan and Camilla Adelle (eds), *Environmental Policy in the EU: Actors, Institutions and Processes* (3rd edn, Routledge 2013) 362.

59 Léger AG Opinion Case C-371/98 *R v Secretary of State for the Environment, Transport and the Regions, ex parte First Corporate Shipping Ltd* [2000] ECR I-9235, [54]; Donald McGillivray, 'Valuing Nature: Economic Value, Conservation Values and Sustainable Development' (2002) 14 JEL 85 on the use of sustainable development to 'economise' environmental problems in *First Corporate Shipping*. See also the Court's analysis of the provisions of European Parliament and Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy [2000] OJ L327/1 in Case C-43/10 *Nomarchiaki Aftodioikisi Aitoloakarnanias and Others v Ypourgos Perivallontos, Chorotaxias kai Dimosion ergon and Others* EU:C:2012:560. This involved Greek plans to divert water from one river basin to another to provide drinking water, electricity supply and irrigation. Despite acknowledging the potential harm to the environment of water power and irrigation, AG Kokott held that water power and irrigation could be regarded as sustainable development measures, elevating narrow economic interests over others, AG Kokott Opinion, EU:C:2011:651; Lee(n 49) 65–66.

inevitable uncertainties. The social dimension of sustainability should likewise encourage consideration of the social aspects of pesticide use, including those highlighted in Sections 3.2 and 3.3.

Even if the changing priority, or the equal strength, of the three dimensions, leaves sustainability without a clear direction,[60] this is a question of hierarchy, not a challenge to the fundamental relevance of each dimension. The discussion here does not take a view on this point, but simply highlights the value of sustainability for its treatment of all these dimensions (as opposed to, for example, the environment alone) as relevant in decision-making. Mere relevance of these dimensions may seem to be a normatively weak position if the aim is to *require* technology regulation, which is often dominated by risk and considerations of health and environmental impacts,[61] genuinely to engage with the broader social and economic impacts of the technology in question. Furthermore, from an environmental perspective, sustainability may not necessarily lead to a greener outcome as it can increase the importance of economic considerations relative to environmental considerations.[62] However, decision-making guided by a principle that explicitly treats a broader range of considerations as relevant, and which construes such considerations themselves broadly, would represent progress, provided it included, with respect to pesticides, *all* impacts of *use*, and the social, economic and environmental values of society.

3.2 Sustainability and Values

The regulatory pursuit of 'sustainable use' immediately raises the question: 'what is sustainable and how should it be achieved and judged?' It has been asserted that what is sustainable can be determined and measured scientifically,[63] by establishing ecological limits, thresholds, etc., and/or by using economic models that measure growth.[64] This is the approach adopted throughout much of European environmental policy-making. For example, the Seventh Environmental Action Programme (7EAP) aims to be based on scientific knowledge,[65] and the analysis in the Commission's Impact Assessment has a strong economic bent. Despite the inclusion of references to citizen involvement in the 7EAP,[66] the need to understand socio-economic and environmental factors and individual and societal behaviour is

60 Ross (n 49) 37.

61 Lee (n 2) 285.

62 Lee (n 49) 65–66. See also, Pallemaerts (n 58) 351 on the reference to sustainable development in Art 11 TFEU. It is also notable that the reference to sustainable development in Art 3(3) TEU is made in an overtly economic context, Lee (n 49) 63.

63 See discussion in Andrew Dobson, *Citizenship and the Environment* (OUP 2003) 143–47.

64 See Bryan Norton, 'Sustainability: Descriptive or Performative?' in John Martin Gillroy and Joe Bowersox (eds), *The Moral Austerity of Environmental Decision Making: Sustainability, Democracy, and Normative Argument in Policy and Law* (Duke University Press 2002) 51–53, which also highlights the presence of commitments beneath support for this approach, 57.

65 Commission and others, *General Union Environment Action Programme to 2020: Living Well, within the Limits of Our Planet* (Publications Office 2014) paras 55, 66.

66 ibid 66–67.

expressed as a technical exercise of filling a data gap.[67] Full public debate is reserved for the later risk management stage of regulation.[68]

Sustainability is not just a question of science or economics; it is political and value based.[69] Measuring sustainability has been interpreted as depending on what we think matters. What we think matters is the thing whose value must be maintained.[70] The point is illustrated by Andrew Dobson's discussion of thresholds, in which he argues that science can identify whether a particular practice will breach a particular threshold, but not whether the element to which the threshold applies 'matters'.[71] The latter judgment is a question of values. In other words, the fruits of scientific research and economic data about growth and welfare levels, though vital, are purely descriptive and cannot resolve fundamental ideological disagreements over what needs to be maintained in order to achieve sustainability.[72] Disagreement is further exacerbated by the presence of uncertainty over, for example, the impacts of human activity[73] or the way natural capital stocks work[74] (if indeed we agree on sustaining natural capital to achieve sustainability), or the behaviour of pesticides, as described above. This uncertainty limits the utility of tools such as indicators and technical expertise.

Determining what constitutes 'sustainable use of pesticides' must involve scientific expertise for sure, but expertise and its underpinning commitments, values and assumptions should (i) be open to examination; and (ii) constitute but one of several streams of knowledge and values contributing to pesticides decision-making. The former calls for open, early and reflective dialogue between experts, stakeholders and publics, on the meaning of sustainability as applied to pesticide use. Its outcomes could then be used to guide, examine and challenge expert advice or develop indicators, a key tool for implementing and measuring progress under the SUD.[75] The latter demands that decision-making look beyond establishing numerical values for sustainability, towards the context of, and the range of considerations bearing on, the use of pesticides, to ensure breadth in regulation. This could also be addressed, pre-legislation, through inclusive deliberation, perhaps alongside a report specifically commissioned to examine, for example, distributive socio-economic impacts of pesticides use and the attitudes of different publics to pesticide use and their values. Such initiatives are precisely what I argue the three dimensions of sustainability in decision-making are designed to promote and support.

Debate over what matters in relation to pesticide use should include broad political discussion of the level and type of pesticide use that equates to sustainable use and the practices and goals required to achieve it. It should also be acknowledged that values

67 ibid 71.
68 ibid 72.
69 Lee (n 49) 57.
70 Brian Barry, 'Sustainability and Intergenerational Justice' in Andrew Dobson (ed), *Fairness and Futurity* (OUP 1999) 101, 105.
71 Dobson (n 63) 146–48.
72 Norton (n 64) 57–58.
73 Lee (n 49) 77.
74 David Pearce and others, *Blueprint 3: Measuring Sustainable Development* (Earthscan Publications 1993) 17.
75 Art 15 SUD.

transform over time and legislation should be able to adapt to evolutions in the meaning of sustainable use and society's changing values and priorities, not just advances in technology and science. Member States and the Commission, for example, could be required to revisit the conclusions of any public dialogue on which the prevailing interpretation of sustainable use was based and assess whether they hold in light of any changes in attitudes, or developments in pesticide use and its regulation.

3.3 Inter-Generational and Intra-Generational Equity

The principle of sustainable use has traditionally been associated with conservation of natural resources so as to prolong their exploitation.[76] Applying the term to pesticides then is, in some ways, a paradox. On the one hand, the intention may not be to eke out a scarce resource, nor to ensure that pesticide use can continue forever, especially since the SUD also aims to reduce pesticide use.[77] On the other hand, a non-pesticide-resistant insect population is an important resource to preserve.[78] However, with respect to pesticides generally, the search for sustainability focusses primarily on ensuring that the sustained existence and welfare of everything pesticides touch (people, nature, agriculture, communities, public finances, etc.) are not adversely affected.[79] A challenge indeed, given the breadth and complexity of the often unknowable impacts of pesticide use.

As discussed above, there is a debate over what we should maintain for the purposes of sustainability, fuelled by our ignorance of what future generations will value. Brian Barry and Andrew Dobson have made a convincing case that equality of opportunities must be maintained such that future generations may live according to their conceptions of 'the good life', by not foreclosing options now.[80] Edith Brown Weiss makes a similar argument[81] and advocates a conception of inter-generational equity based on the conservation of options (the diversity of the resource base), quality (the condition in which the natural and cultural environment is passed on) and access (obliging each generation to ensure equitable access to this legacy).[82] This last principle is important for future intra-generational equity, as preserving options does not necessarily ensure their equitable distribution in the future.[83]

Aspects of pesticide use that raise questions of inter-generational justice include the following. Firstly, Brown Weiss identifies the contribution that diversity makes to robustness as key to the principle of conservation of options.[84] Dependence solely

76 For more, see Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (3rd edn, CUP 2012) 210–13.

77 Art 4(1) third sub-paragraph of SUD.

78 Maria Lee, *EU Regulation of GMOs: Law and Decision Making for a New Technology* (Edward Elgar 2008) 27.

79 Compare the policy goal of achieving sustainable use of phosphorus that seeks, amongst other things, to preserve a limited resource for future generations and to prevent pollution and eutrophication, Commission, 'Consultative Communication on the Sustainable Use of Phosphorus' COM (2013) 517 final.

80 Barry (n 70) 104; Dobson (n 63) 162–63.

81 Weiss (n 28) 38.

82 ibid 38–45.

83 Barry (n 70) 112.

84 Weiss (n 28) 40–42.

on the use of agrochemicals for crop protection, and indeed, the monocultures partly supported by pesticides, may breach this principle. Secondly and closely related, the negative impact on the environment and biodiversity can narrow the resource base, resulting in loss of options, for example for developing new products, maintaining the planet's health and for enabling future generations to address their own problems.[85] Finally, as discussed in Section 2, the persistence of pesticide damage shifts the costs of remediation onto future generations, who are unable to reap any associated benefits.[86] There is, moreover, no guarantee that remediation will be cheaper in the future. These are all issues which the requirements of inter-generational equity could address. Indeed, the strong moral undercurrent of inter-generational equity could provide an ethical context in which to evaluate the ability of current policies to pursue sustainability.[87]

A more general problem, still relevant to pesticides, is that the lack of representation of future (both younger and unborn) generations in decision-making processes means that 'potential trade-offs between the preferences of present and future generations are usually ignored'.[88] The particular problems associated with inter-generational equity should find formal expression in the regulation of pesticides. Despite the reference to sustainability, a large part of the SUD's approach to the regulation of pesticides is risk based, as discussed below. Technical assessments have little to say about the above, and other 'justice'-related questions, including inter-generational equity, a position exacerbated by the gaps in our knowledge about the distribution of environmental goods and bads.[89] However, if the question of inter-generational equity becomes the object of genuine attention in pesticide use decision-making, it could challenge our technocratic decision-making procedures, or even our ways of life.[90] Whether this occurs may depend on the openness of any discussion over sustainability under the auspices of the SUD and whether this endows the concept of sustainability with the necessary moral content.

It may be easy to forget about the presence of questions relating to intra-generational equity in our concern for the impact of pesticide use on future generations. As discussed above, the uneven distribution of the costs and benefits of pesticide use among members of the present generation deserves consideration through the social and economic dimensions of sustainability. Furthermore, as Joel Kassiola passionately argues, there exists an essential connection between social justice and the environment,[91] and this underpins more specific environmental policy.[92]

85 ibid 8–9.

86 ibid 5, 10–11.

87 Celia Campbell-Mohn, 'Sustainability in the United States: Legal Tools and Initiatives' in John Martin Gillroy and Joe Bowersox (eds), *The Moral Austerity of Environmental Decision Making: Sustainability, Democracy, and Normative Argument in Policy and Law* (Duke University Publication 2002) 148.

88 Weiss (n 28) 5.

89 Lee (n 49) 78–79.

90 ibid.

91 Joel Kassiola, 'Why Environmental Thought and Action Must Include Considerations of Social Justice' in John Martin Gillroy and Joe Bowersox (eds), *The Moral Austerity of Environmental Decision Making: Sustainability, Democracy, and Normative Argument in Policy and Law* (Duke University Press 2002).

92 This was also a key tenet of World Commission on Environment and Development, *Our Common Future* (OUP 1987) 2–7.

The Commission does acknowledge the distribution problem but goes no further.[93] The starkest examples are those of local residents bearing the burden of pesticide spraying in the form of air pollution, excessive spraying by one farmer leading to pest resistance that affects neighbouring farmers or crop losses due to pesticides drifting to non-target crops.[94] As discussed, burdens can be felt far more remotely than these examples, by all actors in the food distribution chain.[95]

Pesticides also raise questions of land use. Crop protection activities which, for example, unreasonably exclude members of the public from recreational use or aesthetic enjoyment of land may fall foul of Brown Weiss's principle of conservation of access that grants members of the present generation 'a reasonable, non-discriminatory right of access to the natural and cultural resources of our planet'.[96] On the other hand, if transition to low-pesticide input requires extensification of farming (ie reducing inputs, such as chemical fertilizers and pesticides, while increasing the area of land farmed to maintain yields), this too has implications for land allocation.

Finally, pesticide use raises questions about the structure of our agricultural systems. It has supported continuous, simplified, large-scale farming[97] and reduced the need for labour.[98] While the Commission has characterised minimisation of labour input as beneficial,[99] it also recognises the importance of employment.[100] Alternative agricultural structures exist. For example, the benefits of organic farming for sustainable development, consumers and social and economic development of rural communities, have been recognised.[101] Sustainability, and the concept of intra-generational equity in particular, could prompt exploration of such alternatives to address some of the concerns related to the distributive impacts of pesticide use.

3.4 Summary

The three aspects of sustainability discussed above (its three dimensions, normativity, and inter- and intra-generational equity) have the potential to respond to many of the concerns related to pesticide use, if genuinely and carefully implemented in legislation. Either individually or in combination, they could address the wide range of impacts use of pesticides entails, their distribution between and within generations, the diversity of actors involved, the importance of values when determining what counts as 'sustainable' in pesticide use and the distribution of information about pesticide use throughout society. They also highlight a wealth of means, beyond risk

93 Commission (n 8) 14. There is only a cursory acknowledgement of this phenomenon in the Impact Assessment, Commission (n 34) 61, 152–153, 181.

94 Pimentel and others (n 11) 61.

95 See Pimentel and others (n 11) for more detail.

96 Weiss (n 28) 43–44.

97 den Hond, Groenewegen and van Straalen (n 10) 7.

98 Pretty, Vorley and Keeney (n 25) 20.

99 Commission, 'A Thematic Strategy on the Sustainable Use of Pesticides' COM (2006) 372 final 5.

100 Commission, 'Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth' COM (2010) 2020 18–19.

101 Commission and Eurostat, *Sustainable Development in the European Union: 2013 Monitoring Report of the EU Sustainable Development Strategy* (Publications Office 2013) 96. There is extensive academic comment on the role of agriculture and associated pesticide use in achieving sustainable development. For a concise discussion, see Pearce and others (n 74) ch 8.

assessment, available to approach this particular technology (and indeed others). The following section assesses the Sustainable Use Directive against these three elements of sustainability and the extent to which it tries to harness this potential.

4. THE SUSTAINABLE USE DIRECTIVE AND EUROPEAN POLICY ON SUSTAINABLE PESTICIDE USE

Article 1 states that the SUD aims '. . . to achieve a sustainable use of pesticides'. Achievement of sustainable pesticide use rests on two sub-aims: firstly, reducing the risks and impacts of pesticide use on human health and the environment; secondly, promoting integrated pest management (IPM) and other alternatives to chemical pesticides.[102]

The rest of the SUD provides the legislative armoury to achieve one or both of these sub-aims and includes requirements relating to the training and certification of professional users, distributors and advisors, aerial spraying, reduction of risks in specific protected areas and the adoption of harmonised risk indicators. However, the key mechanism, representing the greatest opportunity to implement the principles of sustainability, is the obligation, in Article 4, on each Member State to produce a National Action Plan (NAP) specifying how it plans to implement the other provisions in the Directive.[103] The NAPs are shared with the Commission and other Member States and must be reviewed every 5 years.[104]

4.1 Three Dimensions

As discussed above, human health and environmental impacts of pesticide use dominate debate, notwithstanding the clear presence of other issues. The Commission's Impact Assessment, possibly the most detailed and complex European document on the subject, is perhaps a qualified exception in that it does, sporadically and partially, consider dimensions of pesticide use beyond health and the environment. On the social and economic front, it highlights, for example, the costs of damage by pesticides to health and the environment, competition and consumer issues and the economic impact of a ban on industry and jobs.[105] However, it is important to remember that this is an assessment of the impacts of *regulating*, not of pesticide use itself. There is

102 IPM is a pest management technique that uses all plant protection methods to discourage the development of pests, keeping the use of pesticides to 'levels that are economically and ecologically justified' and involves minimising disruption of agro-ecosystems and encouragement of natural pest control, art 3(6) SUD. For more nuance, see David Dent, *Integrated Pest Management* (Springer Science & Business Media 1995) ch 1. IPM plays a role in promoting the substitution of more harmful practices and pesticides for those less harmful (art 14(1) SUD), a principle espoused in the Plant Protection Product Regulation (n 6) (eg art 50). The simplicity of the principle belies its complexity and difficulty in implementation, as demonstrated by its fraught operation under European Parliament and Council Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) [2006] OJ L33/1. See Christian Schaible and Vito Buonsante, 'Identifying the Bottlenecks in REACH Implementation: The Role of ECHA in REACH's Failing Implementation' (European Environment Bureau and ClientEarth 2012); Ragnar Lofstedt, 'The Substitution Principle in Chemical Regulation: A Constructive Critique' (2014) 17 J Risk Res 543, 547–49.

103 All NAPs are available at <http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/national_action_plans_en.htm> accessed 24 April 2015.

104 Art 4(2) SUD.

105 Commission (n 34) 59–66.

some treatment, in the Impact Assessment, of the status quo but the asymmetry of the treatment is clear. On the one hand, social, economic and environmental *benefits* are attributed to pesticide use (and indeed keenly emphasised elsewhere by industry that highlights the economic benefits pesticides produce in terms of food production[106]). On the other hand, the types of risks acknowledged tend to be solely environmental and health related.[107] This position is reflected in Commission Communications on the subject, *Towards a Thematic Strategy on the Sustainable Use of Pesticides*[108] (*Towards a Thematic Strategy*) and *A Thematic Strategy on the Sustainable Use of Pesticides*[109] (the *Thematic Strategy*), both of which present a rather unbalanced analysis of the impacts of pesticide use, focussing on the socio-economic benefits and the health- and environment-related harms.

Perhaps understandably, while acknowledging the difficulty of valuing and measuring certain impacts of pesticide use and its regulation,[110] the impacts and benefits of regulation are nonetheless quantified, almost exclusively, in monetary terms in the Impact Assessment.[111] The overall result is a detailed, but narrow and one-sided numerical analysis of a complex problem. This selection of numerical values as a focal point over less quantifiable impacts again illustrates a general danger for more nuanced, open socio-economic assessments (of either the baseline or impacts of regulation) to become closed, technical exercises.[112] Furthermore, if beneficial aspects of the status quo are characterised as predominantly social or economic and negative aspects predominantly environmental or health related,[113] we are left with an unbalanced and flawed basis on which to proceed, in which certain types of values are permanently pitched against each other.[114] If taken seriously, sustainability could address this tendency. It could, for example, explicitly demand a comprehensive analysis of all impacts of pesticide use — beneficial, questionable and harmful — and

106 For example, European Crop Protection Association, 'ECPA Position on Proposals for a Quantitative Reduction in the Use of Crop Protection Products' (2002) 2–3 <http://www.ecpa.eu/files/gavin/11052_ECPA-Position-on-use-reduction.pdf> accessed 7 June 2015.

107 Commission (n 34) 5–7 and 21–24. There is a brief reference to negative impacts on sustainability of agricultural production and consumer preferences (at 59).

108 Commission (n 8).

109 Commission (n 99).

110 Commission (n 34) 56–57.

111 Commission (n 34). The assessment of the impacts of individual potential measures is often expressed in monetary values. For example, analyses of the impacts of certification of new spraying equipment (143–46) enhanced protection of the aquatic environment (151–54) and measures to encourage IPM (164–69) emphasise financial costs and savings. See too the summary of the overall impact of the recommended measures at 179–84, much of which is also monetary or economic, although impacts which cannot be quantified are acknowledged here, and throughout. While there is some evaluation of impacts in non-monetary terms, this is often also expressed numerically, in terms of jobs lost or created (at p 143, 164, 184).

112 Lee (n 49) 220–21.

113 A bias found elsewhere, for example Commission (n 99).

114 It is not denied that this is extremely challenging. In relation to REACH, see Lee (n 49) 220. Even the wide-ranging set of EU-commissioned studies conducted in the decade leading up to the 2002 Thematic Strategy consultation touched only cursorily on matters beyond risk or those not linked in some respect, to risk, Oppenheimer Wolff and Donnelly, *Possibilities for Future EU Environmental Policy on Plant Protection Products: Synthesis Report* (European Commission, Netherlands Ministry of Housing, Spatial Planning and the Environment, Netherlands Ministry of Agriculture, Nature Management and Fisheries 1997).

thereby introduce some symmetry into the analysis of the current baseline (ie an analysis of all types of impacts in all dimensions). The same could apply to assessment of the impacts of regulating.

There is no specific requirement, in the SUD, for the three dimensions of sustainability, discussed in Section 3.1, to be considered in relation to the *impacts* of pesticide use, with the aim of drawing up a full picture of the status quo. All impacts of use mentioned relate either to health or the environment alone. This lack is reflected overall in the infrequency in the SUD with which the term 'sustainable' appears. 'Sustainable development' appears only once,[115] and 'sustainable use' substantively only once too.[116] The discussion above argues that consideration of these elements in Commission documents prior to the introduction of the SUD was shallow, and with no provision in the legislation, it looks unlikely to occur. By contrast, the fourth paragraph of Article 4(1) requires Member States, during their national planning processes, to consider the 'health, social, economic and environmental impacts of the measures considered'. While acknowledgement of the relevance of these dimensions is welcome, their consideration is directed towards impacts of *regulation*, rather than actual use, and so not aimed at generating an understanding of the full consequences of pesticide use which could then be fed into decision-making. In this respect, the provision, and its asymmetry, may be likened to the power in REACH, to authorise substances of very high concern (which might otherwise be restricted) where the 'socio-economic benefits outweigh the risks to human health or the environment arising from the use of the substance'.[117] Here too, the broader socio-economic impacts of regulating are considered relevant, but acknowledgement of these aspects of the status quo is absent. That said, consideration of such issues is not explicitly prohibited by the SUD and so, due to the flexibility of the national planning process (discussed below), could still occur.

Instead of the three dimensions of sustainability, the emphasis in the SUD is clearly on risk reduction. After the mention, in Article 1, of the SUD's aim to achieve a sustainable use of pesticides, elsewhere its purpose, for example in Articles 4 and 15(2)(c), is described as risk (or occasionally dependence or use) reduction. Furthermore, its other provisions, for example on training, inspections, protection of water and storage, do seem primarily aimed at reducing risks through implementing risk management measures.[118] Questions (economic and social) beyond risk are part of the policy mix but predominantly through myopic acknowledgement of economic and social benefits of pesticide use, isolated from less commercial, distributive questions.[119] Overall, the SUD perhaps reflects this policy imbalance and exhibits a structural favouring of certain economic interests: limiting reasons for regulation to risk may reduce opportunities to introduce restraints on economic activity.

115 Recital 23 SUD.

116 Art 1 SUD.

117 Art 60(4) European Parliament and Council Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) [2006] OJ L33/1 (n 102). See Lee (n 49) 221.

118 Respectively, arts 5, 8, 11 and 13 SUD.

119 For example, Commission (n 8) 11; Commission (n 34) 21–22.

4.2 Sustainability and Values

As discussed, the SUD declares its aim to be the sustainable use of pesticides, to be achieved through the sub-aims of risk and impact reduction and promotion of non-chemical alternatives to pesticides. Despite a lengthy consultation process,[120] this aim appears to have been present since the early 2000s with its appearance, in a slightly different linguistic formulation, in Recital 26 and Article 7(1) 6EAP that provide for a more sustainable use of pesticides, which reduces the risks and impacts of pesticides on human health and the environment. In *Towards a Thematic Strategy*, which initiated public consultation on the sustainable use of pesticides,[121] 'sustainable use' is deemed to require the minimisation of hazards and risks to health and the environment from pesticide use.[122] There were major disagreements among the responses, including from stakeholders, individual members of the public, consultants and European institutions, throughout the consultation process. These disagreements are centred on whether sustainable use of pesticides could best be achieved by risk reduction (supported by industry) or use reduction (supported by NGOs).[123] In my view, neither genuinely reflects the demands of sustainability. However, this was by and large the extent to which the content of 'sustainable use' with respect to pesticides was explored. There was little room to articulate and understand the values behind these positions. In the end, risk, use and dependence reduction appear in the SUD,[124] continuing and reflecting political disagreements. This may add flexibility but also perhaps confusion as to the SUD's direction, although risk reduction does still dominate.

By the time the SUD came into force, the understanding of 'sustainable use' as primarily risk reduction had existed for 7 years: since the 6EAP and *Towards a Thematic Strategy* in 2002 and the understanding of 'sustainable use' assumed therein, as discussed above. The subsequent consultation was narrow and did little to genuinely open up this assumption as to the content of sustainable use to more profound reflection through debate or political definition. As discussed above, 'use' is complex and requires normative engagement. Sustainability is normative too and has the potential to incorporate concerns other than safety and environmental protection into how we use resources. However, the lack of opportunity to challenge this assumption and decide collectively whether sustainable use in the context of pesticides should mean primarily risk reduction, or something else or something more, already has the potential to impoverish the SUD in terms of its founding principle.

The Impact Assessment contains tacit value judgments,[125] but rarely grapples with questions of values or conflicts head-on, preferring expression in numerical and

120 For a summary of the consultation process, see Commission (n 34) 16–17.

121 Commission (n 34) 17.

122 Commission (n 8) 8.

123 Documents relating to the consultation are still available on the archived website: DG Environment, 'Sustainable Use of Pesticides' <http://ec.europa.eu/environment/archives/ppps/home.htm> accessed 16 February 2015.

124 Art 4(1) first and third sub-paragraphs of SUD.

125 For example, 'the relative importance of impacts' is identified as a principle of the methodology of the Impact Assessment without further explanation as to how 'relative importance' will be judged, Commission (n 34) 84.

monetary terms. Sustainability could help infuse the narrower, numerical calculations of the Impact Assessment with more openly considered preferences and values by specifically challenging these tacit value judgments and assumptions or encouraging public involvement.[126] Furthermore, a balanced picture of the impacts of pesticide use, as I argued for above, could generate a more detailed value landscape with the potential to enable a more nuanced discussion of, and response to, conflicts between priorities in the question of what to sustain.

The removal, from broader debate, of the normativity of sustainable use, is reinforced by its absence from Article 4 (on national planning), the SUD's main provision for decision-making and participation. However, Member States are still left with a significant degree of autonomy regarding the content and emphasis of their NAPs. They are directed, in Article 4(1), to focus on various aspects of pesticide use, which seem, at face value, perhaps self-explanatory and uncontroversial. However, these aspects all hinge on significant value judgments. This potential (and arguably, need) for value judgments provides a welcome layer of flexibility that, combined with the requirement to involve the public in the planning process,[127] could enable access to some areas of decision-making typically off-limits. For example, Article 4(1) requires NAPs to contain 'quantitative objectives, targets, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment'. Which 'risks and impacts' are not specified, nor are the structure and stringency of the objectives, etc. These can be decided politically. There are some suggested 'areas of concern' for the targets to cover, but the list is not exhaustive.[128] Again, politics and values can weigh in.

NAPs must include 'indicators to monitor the use of plant protection products containing active substances of particular concern'.[129] Neither the active substances nor the indicators are specified, leaving it open for the Member States to decide on the basis of public attitudes to the diverse risks associated with pesticides, or other concerns perhaps. Furthermore, Member States are required to establish 'timetables and targets for the reduction of use . . . , in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items . . . '.[130] This provision requires a host of value judgments, relating to the types of timetables and targets, whether use reduction is an appropriate means to achieve risk reduction, and which items should be prioritised. The requirement to 'take account of the health, social, economic and environmental impacts of the measures

126 For a discussion of participation and sustainable development, see James Meadowcroft, 'Participation and Sustainable Development: Modes of Citizen, Community and Organizational Involvement' in William Lafferty (ed), *Governance for Sustainable Development: The Challenge of Adapting Form to Function* (Edward Elgar 2004).

127 Recital 7 and art 4(5) SUD.

128 There is little official guidance to Member States on such aspects of the SUD.

129 Art 4(1) second sub-paragraph of SUD.

130 Art 4(1) third sub-paragraph of SUD. These priority items are those, identified by Member States, 'such as active substances, crops, regions or practices, that require particular attention', art 15(2)(c). Very few have set such targets and timetables, PAN-Europe, 'Reducing Pesticide Use Across the EU' (undated) 8 <http://www.pan-europe.info/Campaigns/NAPs.html> accessed 14 June 2015.

envisaged, of specific national, regional and local conditions and all relevant stakeholder groups'[131] is an invitation for a debate over trade-offs, reflecting the priorities and values of the participants. Finally, the requirement[132] that Directive 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment[133] is to apply to the 'preparation and modification' of NAPs represents an openness to different values and opinions.

If implemented well, this national planning process could prompt honest, challenging and inclusive reflection on the purpose of pesticide policy, the role of pesticides in agriculture and society, and perhaps even the kind of agricultural systems we should be supporting.[134] While 'sustainable use' as a normative aim is not explicitly up for debate, flexibility in relation to national objectives, timetables, etc., may allow national assertion of 'what matters' through alternative routes. Responsibility therefore shifts to Member States to draw up ambitious NAPs and the Commission to ensure Member States implement their commitments.[135]

There is also a requirement to establish harmonised risk indicators.[136] This raises three points: firstly, the requirement to 'calculate harmonised risk indicators . . . by using statistical data collected in accordance with'[137] the EU's pesticide statistics regulation[138] (PSR), implies a technical, expert-driven approach, which could close down discussion of broader values or alternative courses of action.[139] Secondly, the indicators are harmonised[140] and so may display limited sensitivity towards local conditions or national priorities and values and attitudes towards risks, although Member States are allowed to retain their own national indicators or adopt others in addition to the harmonised ones.[141] Thirdly, wider civil society involvement in establishing these EU-wide, harmonised indicators is not provided for, which again blocks ingress of points of view not represented through the narrow expertise required by

131 Art 4(1) fourth sub-paragraph of SUD.

132 Art 4(5) SUD.

133 [2003] OJ L156/17.

134 Some argue that 'some rethinking of what constitutes agriculture' is required to move away from the current model based on 'agrochemicals, mechanical and petrochemical energy and genetic modification', Erick Fernandes, Alice Pell and Norman Uphoff, 'Rethinking Agriculture for New Opportunities' in Jules Pretty (ed), *The Earthscan Reader in Sustainable Agriculture* (Earthscan 2005); Thompson (n 46) 32.

135 Commission action on the content of NAPs is, as yet, lacking, PAN-Europe, 'Letter to Commissioner Borg' (27 March 2014) <www.pan-europe.info/Campaigns/documents/NAPS/letter%20borg%20-%20SUD%20implementation%20Mar%202014.pdf> accessed 31 March 2015.

136 Art 15(1) SUD.

137 Art 15(2)(a) SUD.

138 European Parliament and Council Regulation 1185/2009/EC concerning statistics on pesticides [2009] OJ L324/1.

139 Andy Stirling, '"Opening Up" and "Closing Down": Power, Participation, and Pluralism in the Social Appraisal of Technology' (2007) 33 Sci Technol Human Values 262, 279. Although Recital 12 PSR provides that it should apply without prejudice to European Parliament and Council Directive 2003/4/EC on public access to environmental information [2003] OJ L41/26 and to European Parliament and Council Regulation 1367/2006/EC on the application of the provisions of the Aarhus Convention [2006] OJ L264/13.

140 The exact distribution of labour here is unclear in the SUD but both Member States (Arts 15(1) and 15(2)(a)) and the Commission (Art 15(4)) appear to be obliged to calculate risk indicators on the basis of data collected by Member States under the PSR.

141 Art 15(1) first sub-paragraph of SUD.

this activity and limits the potential for non-experts to challenge the judgments applied in this process.[142] The absence in either the legislation or prior consultation process of a mechanism which directly elicits and explores values in relation to pesticide *use* may lead to the articulation of indicators uninformed by values, based on unchallenged expert assumptions. Although Member States are required to take account of social, economic, environmental and other impacts of *regulating*, this exercise arguably happens both too late (assessment of regulation rather than status quo) and at the wrong level (national, rather than European) to inform development of these EU-level indicators.

Finally, while there are provisions enabling amendment and updating of the SUD to reflect scientific and technical progress,[143] there is no scope for updating the Directive to correspond to changing public values or attitudes to pesticide use. The required 5-yearly review of NAPs[144] could be used to ensure any such changes are reflected in national policy and the ability of the Commission to propose amendments to the Regulation based on Member State reports,[145] could perform a similar function at EU level, but there is no obligation to use these provisions thus.

4.3 Equity

While *Towards a Thematic Strategy* showed some evidence of long-term thinking,[146] and the 7EAP aims at 'farming with a sense of responsibility for future generations'[147] broader acknowledgment, in the SUD, of the impacts of pesticide use on future generations, or a moral obligation to bequeath a less toxic planet, are conspicuously absent, although Sweden's NAP does seek this goal.[148] Room for explicit consideration of ethical questions in general is also absent, as evident from the lack of opportunity in the SUD for a more normative discussion of sustainable use, discussed above. Likewise any opportunity for the present generation to articulate the values they are willing to commit to for future generations,[149] other than reduced risks from pesticide use, is lacking. Furthermore, the SUD does not explicitly foster a long-term view. There are indications that the Directive is intended to regulate for the foreseeable future given the requirements to review NAPs every 5 years and the Commission's powers to amend the legislation, going forward. However, this is hardly a bold statement that the SUD is prioritising concern for future generations

142 No EU-wide indicators have been established yet, Food and Veterinary Office, 'Report on the Evaluation of National Action Plans Required under Article 4 of Directive 128/2009/EC Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides' (undated) 35, although the EU has developed a software tool, HAIR2014 (Harmonised environmental Indicators for pesticide Risk), for calculating indicators to evaluate performance of, for example, an NAP <www.pesticidemodels.eu/hair/home> accessed 6 April 2015.

143 For example, arts 5(3) and 8(7) SUD.

144 Art 4(2) second sub-paragraph of SUD.

145 Art 16 SUD.

146 Commission (n 8) 25, 30, 34. This mainly relates to long-term risks and impacts of pesticides and the need for more research. Long-term planning or regard for the future is lacking.

147 Commission and others (n 65) 20.

148 Ministry for Rural Affairs, 'National Action Plan for the Sustainable Use of Plant Protection Products for the Period 2013–2017' (2013) 65–66 <http://ec.europa.eu/food/plant/pesticides/sustainable_use_ pesticides/docs/nap_sweden_en.pdf> accessed 29 June 2015.

149 Norton (n 64) 58–59.

or using inter-generational equity as a moral guide for developing and implementing measures.

Focussing primarily on risk reduction may maintain equal opportunities across generations, but it means a lot rides on being right about the risks and managing them correctly. If the approach is wanting in any way, it could narrow the resource base for future generations before the mistake is discovered. The fact that the SUD is not firmer in its obligations to reduce dependence on pesticides may also raise concerns for inter-generational equity in terms of bequeathing diverse and robust agricultural systems. There is no explicit[150] requirement in the SUD to consider the interests of future generations, for example, in the obligation on Member States to produce NAPs. Notably, despite having had an Ombudsman for Future Generations at the relevant time,[151] Hungary's NAP does not refer to this aim or indicate that its Ombudsman was consulted in the negotiation of its NAP.[152]

In terms of intra-generational equity, as with inter-generational equity, there is no obvious scope to raise ethical questions. Risk reduction may have a social aim insofar as it may minimise the costs of pesticide use inflicted off-field, perhaps supporting a more equitable (re-)distribution of costs. This dimension of the policy is far from explicit, although cross-compliance provisions under the Common Agriculture Policy will apply,[153] which presents a form of financial incentive. Allocation of 'goods' does, however, surface in the SUD's provisions requiring prohibition or minimisation of pesticide use in certain areas, such as parks, recreation and school grounds and playgrounds and in areas protected under EU conservation laws.[154] This provision specifically cordons off land for, amongst other things, recreation and recognises the need to protect the more vulnerable members of society and more sensitive parts of the environment. It thus supports Brown Weiss's principle of conservation of access. In addition, the provisions supporting participation, information and awareness raising, if carried out sensitively, could enhance education, leading to a more knowledgeable and engaged society with benefits for the level and quality of participation and potentially implementation.[155]

PAN-Europe notes the potential of NAPs to stimulate rural employment, for example through organic farming,[156] entailing social benefits. It may be possible to pursue such ends, but it is hardly highlighted in the SUD. As discussed above, in addition to such potential benefits, there are also potential distributional drawbacks to reduced pesticide use, such as harm to the less well-off by increased food prices. However, beyond the requirement to consider the 'health, social, economic and

150 One could interpret 'all relevant stakeholder groups', art 4(1) fourth sub-paragraph of SUD, to include future generations.

151 Now abolished <http://jno.hu/en/> accessed 22 April 2015.

152 Ministry of Rural Development, 'National Plant Protection Action Plan 2012' (National Food Chain Safety Office Directorate of Plant Protection, Soil Conservation and Agri-environment 2013) <http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/docs/nap_hungaria_en.pdf> accessed 29 June 2015.

153 Commission, 'CAP Reform – an Explanation of the Main Elements' MEMO/13/621 6.

154 Art 12 SUD.

155 Lee (n 49) 178–79.

156 PAN-Europe, 'NAP Best Practice: Sustainable Use of Pesticides: Implementing a National Action Plan' (undated) 30 <http://www.pan-europe.info/Campaigns/NAPs.html> accessed 14 June 2015.

environmental impacts of the measures envisaged',[157] nowhere is this highlighted as a concern. While there is some flexibility for the consideration or pursuit of a broad range of concerns in the SUD, its primary focus is still safety and environmental protection and depends on the commitment of the individual Member States.

5. SUSTAINABLE USE AND SUSTAINABLE DEVELOPMENT IN THE EU

In sum, there are promising aspects of the SUD, which genuinely do reflect some of the elements of sustainability identified in Section 3 and which are employed to address some of the concerns raised in Section 2. The national planning process under the Directive constitutes a valuable opportunity for broad involvement in shaping a Member State's approach to pesticide use and the potential to consider the social, economic and environmental (and other) impacts of pesticide use along with societal values surrounding pesticide use. It also acknowledges the diversity of actors involved in, or affected by, pesticide use. Both of these aspects, however, could be stronger. The importance of the three dimensions to analysing the impacts of pesticide *use* could also be made more explicit, as could the relevance of inter- and intra-generational equity. Both of these are largely implicit, if in existence at all.

I have argued that the overarching goal of the SUD is that of risk reduction. This is a far less ambitious goal than sustainability in its fullest sense, in that it is less about examining and challenging pesticide use in a holistic and inclusive way and more about making the current patterns of use safer. The difficulty with pursuing risk reduction is that it commits us to an approach to regulation based on technical probabilistic assessments, which is problematic, not least due to uncertainty and the difficulty in determining, or agreeing on, things like acceptable exposure and cumulative effects.[158] Characterising sustainable use as the reduction of risk does not answer any questions; it merely hides one set of unexamined assumptions behind another and avoids one normative judgment by substituting another. It may work, but only perhaps until we develop more sensitive measurement tools. Furthermore, from a more ambitious point of view, it may not constitute a sufficiently disruptive force to send transformative ripples through the rest of our current crop protection or agricultural systems, by perhaps prompting deeper reflection on the desirability of our intensive, monoculture-based farming models which the use of pesticides supports.[159] Nor may it challenge the decision-making status quo, which I argue, referring back to Jasanoff's diagnosis in relation to highly socially embedded technologies, is needed.

This criticism is partly to do with the extent to which we care about language. According to Bob Pepperman Taylor, writing about the tendency of some to reduce sustainability to meaning 'efficiency', we could apply the term 'sustainable' to anything we want to. But, he asks, what would be the benefit of doing this?[160] We already have other words and discourses to describe and explore these concepts; as

157 Art 4(1) fourth sub-paragraph of SUD.

158 PAN-Europe (n 156) 24.

159 Pretty, Vorley and Keeney (n 25) 19–21.

160 Bob Pepperman Taylor, 'Comments on Sustainability' in John Martin Gillroy and Joe Bowersox (eds), *The Moral Austerity of Environmental Decision Making: Sustainability, Democracy, and Normative Argument in Policy and Law* (Duke University Press 2002) 303–304.

with efficiency, so with risk reduction. Applying the title of sustainability to a risk reduction programme adds little. Instead it creates ambiguity[161] and ultimately confines the potential of sustainability to less ambitious purposes. If sustainability is applied to policy and regulation, its integrity should be maintained and its own moral content should be respected.

A partial explanation as to why sustainability is so reduced may lie in the current weakness of sustainable development in the EU. The 1993 Fifth Environmental Action Programme[162] (5EAP), which was the first European sustainable development strategy, in all but name,[163] was ambitious. For example, the ultimate aim of the 5EAP is proclaimed to be 'transforming the patterns of growth in the Community in such a way as to reach a sustainable development path'.[164] The 6EAP, which represented the basis for the environmental dimension of the European sustainable development strategy, presented a milder approach than its predecessor, commuting the rhetoric of transformation to the softer language of de-linking economic growth from environmental damage.[165] The two European instruments which may form or contribute to the EU's current sustainable development strategy (such as it is) are the 7EAP and *Europe 2020*.[166] The rhetoric of change and transformation does appear in the 7EAP.[167] However, overall transformation is linked to a different object—the 'reductionist'[168] notion of a green economy, which emphasises the narrower question of the compatibility between environmental protection and economic growth,[169] arguably prioritising the economic over the social and environmental.[170] *Europe 2020*, now regarded by the Commission as the main instrument for implementing sustainable development,[171] following Rio+20,[172] similarly advocates an omnipotent 'resource efficient, sustainable and competitive economy'.[173] Overall, the place of sustainable development in EU environmental policy currently seems uncertain.[174] In light of this state of affairs, locating a robust basis for transformation in a particular area of policy may be difficult in practice.

Klaus Bosselmann encapsulates sustainable development's frozen potency in the EU by describing the EU as both model of governance for sustainability, in that it shows states can reorganise their sovereignty, and also a model of failure,[175] arguing

161 ibid 304.
162 'Towards Sustainability: A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development' [1993] OJ C138/7.
163 Pallemaerts (n 58) 350.
164 5EAP (n 162) 24.
165 Arts 2(1) first sub-paragraph and 8(1) first sub-paragraph of 6EAP; see n 5.
166 Commission (n 100). For a discussion of the two instruments and their relationship, see Lee (n 49) 63–79.
167 For example, Commission and others (n 65) 43(c).
168 Pallemaerts (n 58) 361.
169 Lee (n 49) 70.
170 On the green economy in the lead up to Rio+20, Karen Morrow, 'Rio+20, the Green Economy and Re-Orienting Sustainable Development' (2012) 14 Env L R 279, 288.
171 Lee (n 49) 64.
172 Commission and others (n 65) 13.
173 Commission (n 100) 14.
174 Pallemaerts (n 58) 361–62.
175 Bosselmann (n 54) 187–93.

that economic growth and competitiveness are still in ascendency.[176] Sustainability, for all sorts of reasons, may not yet encourage a wide range of considerations and opinions to be aired in decision-making and there often seems to be a sizeable lacuna between potential and reality. This, combined with the recent economic crisis and its consequences,[177] poses a significant challenge to any potential for disrupting the status quo. However, a potential is still a potential, even if reality looks unpromising.

Finally, it cannot be said that the SUD offers no opportunities to implement sustainability ambitiously, at least on paper. It depends primarily, however, on the Member State and the contributions of participants during the national planning process under the Directive. Unfortunately, PAN-Europe diagnoses a generally unambitious approach in most Member State NAPs, out of kilter with what it defines as the SUD's philosophy of going beyond other instruments.[178] The UK NAP, for example, is fairly narrow, with little potential to challenge the status quo, focussing on risk reduction, improving agricultural competitiveness and reducing regulatory burdens[179] with no mention of either sustainable development or sustainable agriculture. The Hungarian and Swedish NAPs are more ambitious and encompass a greater range of considerations. The former is fairly holistic, providing detail on measures to support more 'ecological' methods of farming[180] and referring to changes in consumption.[181] The latter refers to Sweden's ambitious aim to achieve a non-toxic environment by 2020. It also links plant protection policy to sustainable rural development[182] and aims to achieve 'cost-effective, environmentally friendly and socially sustainable' plant protection.[183] In sum, commitments to using sustainability to open up decision-making may vary significantly across the EU.

Ultimately, the picture of sustainable use embedded in the rest of the SUD may not support a particularly strong challenge to the European economic order since, outside the NAPs, it does little to open up decision-making or address the pesticide question beyond narrowly conceived issues of protection of human health and the environment. This is partly due to the lack of ambition in implementing sustainability and the elements discussed in Section 3. It is also perhaps due to the fact that the question of what 'sustainable pesticide use' actually means and requires was never sufficiently opened up to deliberation. The preconceived notion of sustainable use and the narrow consultation process left fundamental disagreements unacknowledged and unexamined, leading to an ambiguous and unambitious piece of legislation. The broader consequences of this are that firstly, there is little chance of systematically addressing all the issues relating to pesticide use, and secondly the scope of decision-making in this field remains restricted, by and large, to safety, environmental protection and risk assessment.

176 ibid 194.
177 Clémençon (n 58) 331.
178 PAN-Europe (n 130) 8–9.
179 DEFRA, 'UK National Action Plan for the Sustainable Use of Pesticides (Plant Protection Products)' (2013) 3–4.
180 Ministry of Rural Development (n 152) 16, 37.
181 ibid 31.
182 Ministry for Rural Affairs (n 148) 67.
183 ibid 9.

6. CONCLUSION

Part of the promise of sustainability is that it could provide a means to incorporate diverse considerations into decision-making processes, however hard they may be to implement. This promise exists despite disagreements over its internal structure or the correct distribution of weight between its various dimensions. It has the potential to prompt ambitious policy and legislation, by, amongst other things, opening up decision-making to explicit consideration of the future and a wide range of other issues. Realisation of its potential depends on the manner in which it is employed in policy and legislation. Owing to its emphasis on risk, the SUD establishes a reductive and unambitious approach to the implementation of sustainable use that fails to realise the potential of sustainability and instead leaves its initial promise rather hollow. It does provide some flexibility for Member States to choose the appropriate level of ambition. This flexibility is a good thing in terms of Member State autonomy and enabling the generation of plans tailored to specific national conditions. However, a more far-sighted impetus from the centre could perhaps have achieved more, given the minimalism of many NAPs. Possible reasons for this lack of ambition at both EU and national level include the narrowness of procedure through which the SUD and NAPs were developed. Finally, the lack of a more ambitious approach may simply be a reflection of the current fragility of sustainable development in the EU.

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